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control means for determining motion direction and a speed of the magnification lens group in accordance with an output from said detection means, and for performing motion/stop control of the magnification lens group along the optical axis; and change means for changing a sensitivity of the motion of the magnification lens group relative to a detection result of said detection means in accordance with a state of a recording operation.

49. An image pickup apparatus according to claim 48, wherein said lens group is removably and exchangeably mounted on a main body of the image pickup apparatus.

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50. (Amended) An image pickup apparatus according to claim 48, wherein said change means changes the motion speed of the magnification lens group relative to an output of said detection means.

REMARKS

The claims now pending in the application are Claims 1 to 7, 9, 10, 13 to 37, 40 to 45 and 47 to 50, the independent claims being Claims 1, 14, 17, 26, 29, 42, 44 and 48. Claims 11, 12, and 38 has been cancelled. Claims 1 to 7, 9, 10, 13 to 18, 22, 26 to 30, 34, 40 to 42, 44 and 48 have been amended.

The objection to the drawings under MPEP § 608.02(g), in that Figs. 1-5, 12, 13, 14A and 14B should be designated prior art, again is respectfully traversed. Applicants believe Figures 1-5, 12, 13, 14A and 14B disclose general features which, when

taken together with the features of the other figures of the application, show the inventive features of the application, and therefore are not prior art. Accordingly, Applicants believe it is not appropriate to label the objected-to figures as "Prior Art."

Claims 14 to 37, 40, 41, 48 and 50 have been rejected under 35 U.S.C. § 102(e), as anticipated by U.S. Patent No. 5,648,836 (Sato). Claims 44, 45 and 47 have been rejected under 35 U.S.C. § 102(b), as anticipated by U.S. Patent No. 5,159,370 (Takahashi). Claims 1 to 7 and 9 to 13 have been rejected under 35 U.S.C. § 103(a), as unpatentable over U.S. Patent No. 5,278,601 (Kawanami), in view of U.S. Patent No. 5,485,200 (Shimizu). Claims 38 and 39 have been rejected under 35 U.S.C. § 103(a), as unpatentable over the Sato '836 patent, in view of the Kawanami '601 patent. Claims 42 and 43 have been rejected under 35 U.S.C. § 103(a), as unpatentable over the Takahashi '370 patent, in view of U.S. Patent No. 5,475,456 (Haraguchi). Reconsideration and withdrawal of the rejections respectfully are requested in view of the above amendments and the following remarks.

The rejections of the claims over the cited art respectfully are traversed. Nevertheless, without conceding the propriety of the rejections, Claims 1 to 7, 9, 10, 13 to 18, 26 to 30, 34, 40 to 42, 44 and 48 have been amended herein more clearly to recite various novel features of the present invention, with particular attention to the Examiner's comments. Support for the proposed amendments may be found in the original application. No new matter has been added.

Applicant submits that the prior art fails to anticipate the present invention. Moreover, Applicant submits that there are differences between the subject matter sought

to be patented and the prior art, such that the subject matter taken as a whole would not have been obvious at the time the invention was made to one of ordinary skill in the art.

Claim 1

Independent Claim 1, as amended, relates to an image pickup apparatus, and recites, inter alia, an image pickup apparatus having a lens unit including a ring member and control means for motion/stop control of a lens group, and a camera body including motion direction setting means. In particular, the camera body sets a relationship between a motion direction of a lens group and a rotation of the ring member using setting means and a main display, both of which are included in the camera body. As acknowledged by the Examiner, the Kawanami '601 patent fails to disclose or suggest the feature of menu setting described in the last paragraph of Claim 1. Applicant submits that the Shimizu '200 patent fails to remedy this deficiency. Although the Examiner refers to column 5, lines 36 to 46 of Shimizu as teaching a display menu, Applicant notes that the reference relates to a display menu of a PC screen. Nowhere does the Shimizu'200 patent disclose or suggest such a feature with respect to a camera unit which includes the setting means function together with the menu function control unit and display means, as disclosed and claimed in the present application.

Claims 14, 17, 26 and 29

Independent Claims 14, 17, 26 and 29, as amended, relate to an image pickup apparatus comprising a camera part detachably mounted on the camera part, and which transmits information of a response characteristic between the lens part and a ring

member, which characteristic is determined at the lens part, to the camera part, to be stored in memory of the camera part. Applicant submits the Sato '836 patent fails to disclose or suggest at least this feature. Although the Sato '836 patent discloses at column 5, lines 16 to 19 the features of a camera unit including an operation unit 21, a mode selection unit 22 and a CPU 5, which the Examiner asserts constitute control means for determining camera operation characteristics, Applicant submits that these disclosed structures fail to anticipate or obviate the claimed features; Applicant submits that the cited structures fail to provide or suggest the features of control means for selecting and determining a response characteristic between a ring member and a lens provided in the lens part and transmitting means for transmitting a determination result to the camera part, as disclosed and claimed in the present application. Nor is the Sato '836 patent understood to disclose or suggest the feature of storing means functioning together with the transmitting means, as disclosed and claimed in the present application.

Claim 42

Independent Claim 42, as amended, relates to an image pickup apparatus comprising a ring member, detection means for detecting a change amount of rotation of the ring member, and control means for controlling motion/stop of a magnification lens group in accordance with a detection by the detection means, and recites the feature of inhibition means for inhibiting the magnification lens to stop during a predetermined time when the detection means detects that rotation of the ring member is stopped. As discussed in greater detail in the prior Amendment filed October 9, 2001, Applicant submits that neither the Takahashi '370 patent nor the Haraguchi '456 patent, alone or in

combination, discloses or suggests at least this feature, as disclosed and claimed in the present application.

Claim 44

Independent Claim 44, as amended, similarly relates to an image pickup apparatus comprising a ring member, detection means for detecting a change amount of rotation of the ring member, and control means for determining motion direction and speed of a magnification lens group in accordance with an output of the detection means and performing motion/stop control, and recites the feature of change means for changing a sensitivity of the motion of the magnification lens group relative to a detection result of the detection means, so as to change a detection amount of the ring member to be used for motion/stop control (see the embodiment of Fig. 10). The present aspect thus controls detection sensitivity of detection means, which detects rotation amount of the ring member, thereby controlling sensitivity of motion of a lens. Applicant submits that the Takahashi '370 patent fails to disclose or suggest at least these features. Rather, as shown in Fig. 6, the Takahashi '370 patent is understood merely to teach the use of pulse signals having different pulse widths.

Claim 48

Independent Claim 48, as amended, similarly relates to an image pickup apparatus including a ring member, detection means and control means, and recites the feature of change means for changing a sensitivity of the motion of the magnification lens group relative to a detection result of the detection means in accordance with a state of

recording operation. For example, as shown in Fig. 22, in one aspect the present invention sets a mode according to a state of a REC switch. Applicant submits that the Sato '836 patent fails to disclose or suggest at least this feature, as disclosed and claimed in the present application. Rather, in the Sato apparatus, a user selects manually a mode on the basis of an object to be picked up (see column 5, lines 17 to 19 and column 8, lines 31 to 47); a lens is driven in accordance with such selected mode.

For the above reasons, Applicant submits that independent Claims 1, 14, 17, 26, 29, 42, 44 and 48 are allowable over the cited art.

Claims 2 to 7, 9 to 13, 15, 16, 18 to 25, 27, 28, 30 to 41, 43, 45, 47, 49 and 50 depend from Claims 1, 14, 17, 26, 29, 42, 44 and 48, respectively, and are believed allowable for the same reasons. Moreover, each of these dependent claims recites additional features in combination with the features of its respective base claim, and is believed allowable in its own right. Individual consideration of the dependent claims respectfully is requested.

Applicant believes that the present Amendment is responsive to each of the points raised by the Examiner in the Official Action, and submits that the application is in allowable form. Favorable consideration of the claims and passage to issue of the present application at the Examiner's earliest convenience earnestly are solicited.

Applicant's attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE TO THE CLAIMS

1. (Three Times Amended) An image pickup apparatus having a camera body and a lens unit [group], comprising:

a ring member for driving [a] the lens unit;

detection means for detecting a change amount of a rotation of said ring member;

control means, providing in the lens unit, for performing motion/stop control of at least the lens [group] unit along an optical axis in accordance with a detection result by said detection means; and

motion direction setting means, providing in the camera body, for a user to set a desired motion direction of the lens [group] unit relative to the rotation direction of said ring member,

wherein said motion direction setting means comprises (i) a character generator, (ii) menu setting means, (iii) display means provided in said image pickup apparatus and displaying an image picked up by said image pickup apparatus, (iv) a menu function control unit for controlling said character generator in accordance with the operation state of said menu setting means operated by the user, and for displaying a predetermined menu on a display screen of the display means, and (v) setting means for selecting a desired setting item among a plurality of items displayed on the predetermined menu and setting a condition regarding the motion direction of the lens [group] unit.

2. (Amended) An image pickup apparatus according to claim 1, wherein the lens [group] unit includes a magnification lens, and said motion direction setting means comprises:

an operation switch capable of being operated by [an] a user; and

change means for changing the motion direction of the lens [group] unit relative to the rotation direction of said ring member in accordance with the operation state of said operation switch.

3. (Amended) An image pickup apparatus according to claim 2, wherein [a] the lens unit is made removable relative to the [main] camera body of the image pickup apparatus.

4. (Amended) An image pickup apparatus according to claim 3, wherein said ring member is disposed concentrically about an optical axis of [said] the lens [group] unit.

5. (Amended) An image pickup apparatus according to claim 1, wherein the lens [group] unit includes a magnification lens, and said motion direction setting means comprises:

memory means for storing motion direction information of the lens [group] unit relative to the rotation of said ring member, the motion direction being given by a user; and

change means for changing the motion direction of the lens [group] unit in accordance with the motion direction information stored in said memory means.

6. (Amended) An image pickup apparatus according to claim 5, wherein [a] the lens unit is made removable relative to the [main] camera body of the image pickup apparatus.

7. (Amended) An image pickup apparatus according to claim 6, wherein said ring member is disposed concentrically about an optical axis of [said] the lens [group] unit.

9. (Twice Amended) An image pickup apparatus according to claim 1, wherein [a] the lens unit is made removable relative to the [main] camera body of the image pickup apparatus.

10. (Amended) An image pickup apparatus according to claim 9, wherein said ring member is disposed concentrically about an optical axis of [said] the lens [group] unit.

11. (Cancelled)

12. (Cancelled)

13. (Amended) An image pickup apparatus according to claim 1, wherein said ring member is disposed concentrically about an optical axis of [a] the lens unit.

14. (Three Times Amended) An image pickup apparatus having (i) a camera part, and (ii) a lens part, detachably mounted on the camera part, with a magnification lens and a ring member that drives the lens part, comprising:

detection means which detects a change amount of a rotation of the ring member for driving the lens part;

control means, provided in the lens part, for selecting and determining a response characteristic between an output of said detection means and a motion of the magnification lens, and for controlling motion/stop of at least the magnification lens along an optical axis in accordance with an output of said detection means;

transmitting means for performing communication between the camera part and the lens part; and

storing means, provided in said camera part, for storing information of the response characteristic transmitted from the lens part.

15. (Amended) An image pickup apparatus according to claim 14, wherein the plurality of characteristics of said control means [include] includes a first characteristic for controlling a motion amount of the magnification lens per unit rotation of at least the ring member to be constant and a second characteristic for controlling a motion

speed of the magnification lens to be variable in accordance with a rotation speed of the ring member.

16. (Amended) An image pickup apparatus according to claim 14, wherein the plurality of characteristics of said control means [include] includes a first characteristic for controlling a motion amount of the magnification lens per unit rotation of at least the ring member to become a first predetermined amount and a second characteristic for controlling a motion amount of the magnification lens per unit rotation of the ring member to become a second predetermined amount different from the first predetermined amount.

17. (Three Times Amended) An image pickup apparatus having (i) a camera part, and (ii) a lens part, detachably mounted on the camera part, with a magnification lens and a ring member that drives the lens part, comprising:

detection means which detects a change amount of a rotation of the ring member for driving the lens part;

control means, provided in the lens part, providing a plurality of characteristics each settable by a user for selecting and determining a response characteristic between an output of said detection means and a motion of the magnification lens, and for controlling motion/stop of at least the magnification lens along an optical axis in accordance with an output of said detection means;

transmitting means for performing communication between the camera part
and the lens part; and

storing means, provided in said camera part, for storing information of the
response characteristic transmitted from the lens part by said transmitting means.

18. (Amended) An image pickup apparatus according to claim 17,
wherein the plurality of characteristics of said control means [include] includes a first
characteristic for controlling a motion amount of the magnification lens per unit rotation of
at least the ring member to be constant and a second characteristic for controlling a motion
speed of the magnification lens to be variable in accordance with a rotation speed of the
ring member.

22. (Amended) An image pickup apparatus according to claim 17,
wherein the plurality of characteristics of said control means [include] includes a first
characteristic for controlling a motion amount of the magnification lens per unit rotation of
at least the ring member to become a first predetermined amount and a second
characteristic for controlling a motion amount of the magnification lens per unit rotation of
the ring member to become a second predetermined amount different from the first
predetermined amount.

26. (Three Times Amended) An image pickup apparatus having (i) an image pickup apparatus main body and (ii) a lens unit, detachably mounted on said main body, which has a magnification lens and a ring member disposed concentrically about a lens optical axis, comprising:

detection means for detecting a change amount of a rotation of the ring member disposed concentrically about the lens optical axis;

control means, provided in the lens unit, for selecting and determining a response characteristic between an output of said detection means and a motion of the magnification lens, said control means for controlling motion/stop of at least the magnification lens along the optical axis in accordance with an output of said detection means;

transmitting means for performing communication between the main body and the lens unit; and

outputting means for outputting information of the response characteristic from said lens unit to storing means in said main body by said transmitting means.

27. (Amended) An image pickup apparatus according to claim 26, wherein the plurality of characteristics of said control means [include] includes a first characteristic for controlling a motion amount of the magnification lens per unit rotation of at least the ring member to be constant and a second characteristic for controlling a motion speed of the magnification lens to be variable in accordance with a rotation speed of the ring member.

28. (Amended) An image pickup apparatus according to claim 26, wherein the plurality of characteristics of said control means [include] includes a first characteristic for controlling a motion amount of the magnification lens per unit rotation of at least the ring member to become a first predetermined amount and a second characteristic for controlling a motion amount of the magnification lens per unit rotation of the ring member to become a second predetermined amount different from the first predetermined amount.

29. (Three Times Amended) An image pickup apparatus having (i) a camera body, and (ii) a lens unit, detachably mounted on the camera body, which has a magnification lens and a ring member disposed concentrically about a lens optical axis, comprising:

detection means for detecting a change amount of a rotation of the ring member disposed concentrically about the lens optical axis;

control means, provided in the lens unit, for selecting and determining a response characteristic between an output of said detection means and a motion of the magnification lens;

transmitting means for performing communication between the camera body and the lens unit;

setting means, provided in the camera body, for a user to set the characteristic of said control means by said transmitting means; and

outputting means for outputting information of the response characteristic from said lens unit to said camera body by said transmitting means,

wherein a motion/stop of at least the magnification lens is controlled along the optical axis in accordance with an output of said detection means.

30. (Amended) An image pickup apparatus according to claim 29, wherein the plurality of characteristics of said control means [include] includes a first characteristic for controlling a motion amount of the magnification lens per unit rotation of at least the ring member to be constant and a second characteristic for controlling a motion speed of the magnification lens to be variable in accordance with a rotation speed of the ring member.

34. (Amended) An image pickup apparatus according to claim 29, wherein the plurality of characteristics of said control means [include] includes a first characteristic for controlling a motion amount of the magnification lens per unit rotation of at least the ring member to become a first predetermined amount and a second characteristic for controlling a motion amount of the magnification lens per unit rotation of the ring member to become a second predetermined amount different from the first predetermined amount.

38. (Cancelled)

40. (Amended) An image pickup apparatus according to claim 14,
wherein the ring member is disposed concentrically about [said] the lens [group] part.

41. (Amended) An image pickup apparatus according to claim 17,
wherein the ring member is disposed concentrically about [said] the lens [group] part.

42. (Twice Amended) An image pickup apparatus comprising:
a ring member disposed concentrically about a lens optical axis of a lens
unit;

detection means for detecting a change amount of rotation of said ring
member;

control means for performing motion/stop control of at least a magnification
lens group along the optical axis in accordance with a detection result by said detection
means; and

inhibition means for inhibiting the magnification lens to stop during a
predetermined period [in the state that] when said detection means detects a stop [does not
detect the amount] of rotation of the ring member.

44. (Twice Amended) An image pickup apparatus comprising:
a ring member disposed concentrically about a lens optical axis of a lens
unit;

detection means for detecting a change amount of rotation of said ring member;

control means for determining motion direction and speed of a magnification lens group in accordance with an output of said detection means and performing motion/stop control of the magnification lens group along the optical axis; and

change means for changing a sensitivity of the motion of the magnification lens group relative to a detection result of said detection means so as to change a detection amount of said ring member to be used for motion/stop control of the magnification lens group performed by said control means [reference amount of rotation of said ring member for permitting/inhibiting the motion of the magnification lens group].

48. (Three Times Amended) An image pickup apparatus having a magnification lens group, comprising:

a ring member disposed concentrically about a lens optical axis;

detection means for detecting a change amount of a rotation of said ring member;

control means for determining motion direction and a speed of the magnification lens group in accordance with an output from said detection means, and for performing motion/stop control of the magnification lens group along the optical axis; and

change means for changing a sensitivity of the motion of the magnification lens group relative to a detection result of said detection means in accordance with a [photographing] state of a recording operation.